

**MEMORANDUM**

El Monte Operable Unit Treatability Issues and Preliminary Alternatives

TO: Bella Dizon/USEPA Region IX
FROM: Greg Woodside
DATE: July 23, 1997

This memorandum summarizes some preliminary concepts and data interpretations regarding the available El Monte water quality data, as we discussed on the phone today. Many of the concepts and interpretations discussed below are very preliminary and may change as additional data become available.

Perchlorate and MTBE Sampling

Sampling for both methyl tert-butyl ether (MTBE) and perchlorate is needed to address treatability issues. Both of these compounds have potentially significant issues regarding treatment of extracted groundwater. Perchlorate has been detected in numerous wells east of the El Monte Operable Unit. No known perchlorate data in the El Monte Operable Unit are available to CH2M HILL. MTBE is typically believed to be associated with possible releases from gasoline storage facilities. There are numerous gasoline storage facilities within and upgradient of the El Monte Operable Unit. These are potential sources of MTBE contamination in groundwater.

There are no known, tested, and commonly accepted treatment methods for perchlorate. The Baldwin Park Operable Unit PRP group is currently evaluating the treatability of perchlorate.

MTBE has three physical/chemical treatment technologies that appear to be feasible. These are air stripping, granular activated carbon (GAC) adsorption, and advanced oxidation (ultraviolet light with hydrogen peroxide or ozone with hydrogen peroxide). However, for each of these three treatment technologies, the presence of MTBE poses additional problems. In this discussion, we are assuming treatment for VOCs is already required). For air stripping, the presence of MTBE can require higher air:water ratios and lower water loading rates, resulting in an increased column size. For GAC, the presence of MTBE may increase carbon usage rates. If advanced oxidation treatment is utilized, the presence of MTBE may increase ozone and/or hydrogen peroxide dosage rates. Among these three treatment technologies, the presence of MTBE has the least impact on advanced oxidation treatment processes based on very preliminary treatability evaluations.

Because of the lack of known, tested, and commonly accepted treatment technology for perchlorate, the El Monte OU project would greatly benefit from perchlorate sampling. Perchlorate sampling from a limited number of wells is recommended at this time. This limited sampling is based on several factors:

- Perchlorate has been detected in wells east (generally upgradient) of the El Monte OU.
- Sampling of a limited number of wells on the eastern side of the El Monte OU would provide a reconnaissance level evaluation regarding the issue of whether perchlorate contamination east of the El Monte OU has migrated into the El Monte OU.
- To conduct the reconnaissance level sampling, testing for perchlorate from the following wells is recommended: two zones of MW2-7 (105 to 115 ft depth, 280 to 290 ft depth), site assessment well W11CHMW1, and site assessment well W11GOBH9. Each of these wells is in the current El Monte OU groundwater quality network. The groundwater samples for perchlorate could be collected during the next quarterly sampling round.
- If this sampling indicates the presence of perchlorate at levels of concern, additional sampling may be required.
- If other perchlorate data become available that indicate the presence of perchlorate in areas other than towards the east of the El Monte OU, or other information become available indicating more perchlorate sampling is needed, additional perchlorate sampling may be required.

Because of the treatability issues concerning MTBE, the El Monte OU project would greatly benefit from a reconnaissance level MTBE sampling. MTBE sampling should be conducted at selected shallow site assessment wells plus two zones from MW2-5 (110 to 120 ft depth, and 280 to 290 ft depth) and two zones from MW2-7 (54 to 64 ft depth and 280 to 290 ft depth). The selected site assessment wells recommended for ~~perchlorate~~ ^{MTBE} sampling are: W11NMW05, W11CMW01, W11SIMW3, W11TCMW1, W11GOBH9 and W11CHMW1.

It could be argued that sampling for perchlorate and MTBE is not currently required and should be conducted later if needed. However, the limited sampling recommended above will provide information regarding these two potentially problematic compounds before the Feasibility Study is completed, and will minimize the possibility that unaddressed perchlorate and/or MTBE problems will arise after completion of the Feasibility Study and alter the selected remedy.

Preliminary Concepts on El Monte Alternatives

To conduct a preliminary assessment of the significance of the extent of contamination in the El Monte OU, an informal measure of significance of ten-times MCL is used in this discussion. Ten times MCL contamination, such as a PCE concentration of 50 ug/L is used as a general guideline for elevated VOC concentrations, and is not a delineation of 'significant' contamination or a level that is associated with a remedial action objective. Another criterion for identifying areas of concern, even if concentrations are below the informal criterion of ten times MCL is the presence of increasing concentrations at individual wells between sampling rounds. For example, if a well has concentration less than the detection limit in one round, and concentrations above the MCL in a later round, this may indicate that contaminant migration is occurring.

EL MONTE OPERABLE UNIT TREATABILITY ISSUES AND PRELIMINARY ALTERNATIVES

Based on the general guidelines of (1) the area above ten-times MCL, and (2) concentrations remaining relatively similar between sampling rounds, the area of most concern in the El Monte OU is the interior of the OU. Two exceptions to this general interpretation are:

- In the southeast portion of the OU, in the vicinity of well W11BIMW4 - the PCE concentration at well W11BIMW4 in February 1997 was less than the detection limit, and PCE was detected at 7 ug/L in May 1997).
- On the western side of the OU, in the vicinity of the El Monte Task Force well MW2-1 - the PCE concentration at well MW2-1 was less than the detection limit in February 1997, and PCE was detected at 8 ug/L in May 1997.

Based on this preliminary interpretation of the data, which may change based on additional sampling data and more detailed analysis in the months ahead, the most relevant alternatives will likely focused on shallow contamination in the interior of the OU.

Alternatives that address intermediate depth contamination should still be formulated and evaluated, based on several data points, such as the TCE concentration of 15 ug/L at the 280-290 feet depth in MW2-7. Although an active pump-and-treat remedy may or may not in fact be ultimately required for intermediate level contamination, such alternatives should be developed and evaluated along with alternatives that address shallow contamination.